Investigation-Derived Waste/Remediation Waste Management Plan for Remedial Actions at the F.E. Warren Air Force Base Former Atlas "E" Missile Site 12, Windsor, Colorado

Prepared for:
Department of the Army
USA Engineer District, Omaha

US Army Corps of Engineers ®
Omaha District

Prepared by:
North Wind Services, LLC

NORTHWIND SERVICES

November 2014

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Contract No. W9128F-12-R-0064

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ACRONYMS

CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental, Response, Compensation, and Liability Act
CESQG	conditionally exempt small quantity generator
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Materials Manager
DOD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
GAC	granular activated carbon
ID	identification
IDW	investigation-derived waste
LQG	large quantity generator
MCL	maximum contaminant level
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
RSL	residential screening level
RW	remediation waste
SQG	small quantity generator
TCE	trichloroethene
TSDF	treatment, storage, and disposal facility
USACE	U.S. Army Corps of Engineers

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1. INTRODUCTION

This Investigation-Derived Waste/Remediation Waste (IDW/RW) Management Plan identifies the approach to manage waste generated at the F.E. Warren Air Force Base, Former Atlas "E" Missile Site 12 (Atlas 12) for the remedial action activities performed under United States Army Corps of Engineers (USACE) contract no. W9128F-12-R-0064. Waste management will be conducted to comply with regulatory requirements and ensure protection of human health and the environment. All personnel (including all subcontractors) who handle, transport, store, treat, and/or dispose of wastes will be trained to comply with requirements set forth in this document.

2. WASTE MANAGEMENT APPROACH

The overall waste management approach for Atlas 12 wastes are shown in Figures 1 and 2. The following steps summarize the approach to managing and documenting the management of wastes:

1. Minimize creation of waste,
2. Classify waste based on process knowledge,
3. Containerize the waste,
4. Sample and analyze (if necessary) to determine waste characteristics based on analytical results,
5. On-site treatment and disposal OR transportation and off-site disposal, and
6. Documentation of waste determination, transportation, and disposal.

2.1 Waste Types

Waste generated at the site will be segregated based on the type of media (i.e., solid or liquid) and then characterized as hazardous, nonhazardous, or non-regulated waste. The IDW/RW generated during field activities is expected to include drill cuttings, EHC remediation amendment, groundwater from pump tests, development and purge water, decontamination water, personal protective equipment (PPE), disposable sampling equipment, and ordinary trash. Process knowledge will be used to initially segregate soils and liquid wastes, as shown in Figures 1 and 2. Non-regulated solid waste will include PPE, disposable sampling equipment, and ordinary trash.

2.2 Waste Minimization

To minimize the quantity of hazardous waste generated, containers will be used to segregate different types of potential waste types for each media. During field work, any technologies available for minimizing of wastes will be deployed, including the use of sampling techniques designed to minimize purge water, the use of field screening to minimize the volume subject to hazardous waste characterization, and the use of on-site treatment technologies (e.g., granular activated carbon [GAC]) to decrease the amount of waste requiring disposal as hazardous wastes.

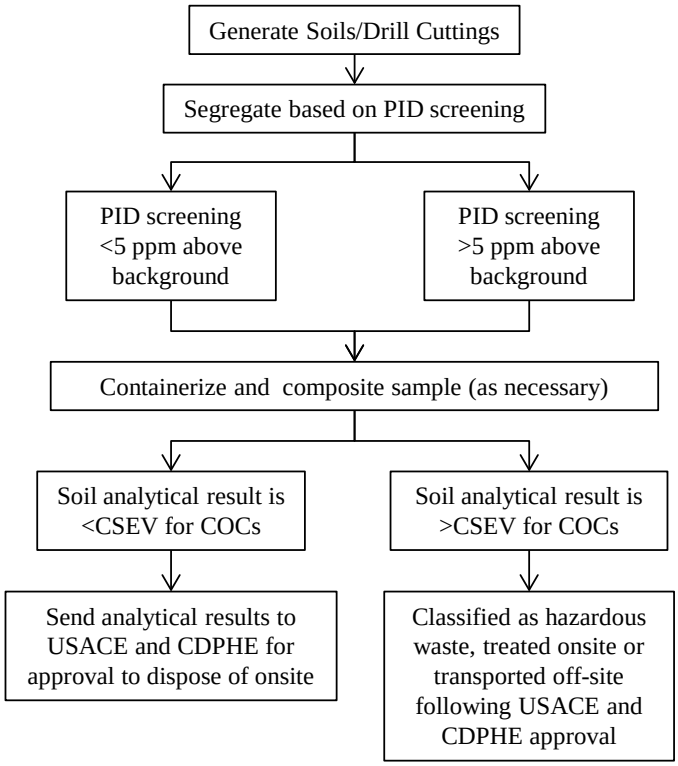

Figure 1. Waste management approach for soils.

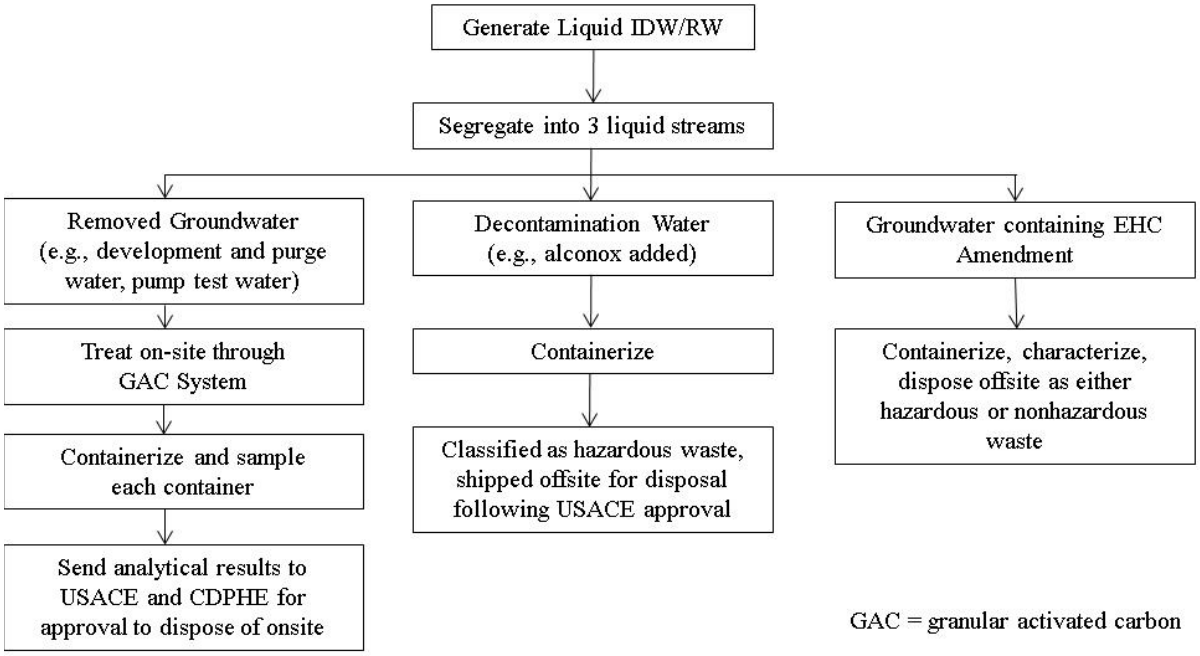

Figure 2. Waste management approach for liquids.

3. WASTE CONTAINER TYPE, LABELING, AND ON-SITE MANAGEMENT

A waste control area will be established on-site within the fenced area for the storage of wastes. Department of Transportation (DOT) compliant waste containers will be selected, as appropriate, for the physical and chemical composition of the waste. Containers of waste will be initially labeled with the information included in Table 1 until analytical data are received. After the analytical data are available, evaluated, and a hazardous waste determination is made (per Section 4), the label will be updated with the waste determination information.

Table 1. Atlas 12 container labeling.

Label Category	Example of Label Information
Hazardous Waste-Pending Analysis	Hazardous Waste-Pending Analysis
Project Name	F.E. Warren Missile Site Atlas 12
U.S. Environmental Protection Agency (EPA) Site Identification (ID) Number	COR000009324
Project Description	RA Implementation
Container Name that includes Point of Generation	Tote 1; MW-36 to 44
Environmental Media	Purge Water
Date of Generation	Month and Year
Contact Phone Number and Company Name	USACE, Jeff Skog (402) 995-2739

4. WASTE DETERMINATION AND CERTIFICATION

Upon receipt of the analytical data, the data will be evaluated to assign a waste determination under the following classifications:

- *Hazardous Waste.* If the waste is determined to be hazardous, the container will be labeled in accordance with 49 Code of Federal Regulations (CFR) Part 172 within 5 working days of the hazardous waste determination.

- *Non-Hazardous Waste that Cannot be Disposed of On-Site*. If the waste is determined to be non-hazardous but requires off-site disposal, the container will be labeled with a non-hazardous waste label within 5 working days of the hazardous waste determination.

- *Non-Hazardous, Non-DOT, Non-Resource Conservation and Recovery Act (RCRA) Solid Waste.* If the waste is determined to be non-hazardous and is below the maximum contaminant level (MCL) for groundwater (EPA, 2012), or appropriate federal or state residential regional screening levels (RSLs) for soil (CDPHE, 2012), a written request will be prepared for the USACE Project Manager and USACE Certified Hazardous Materials Manager (CHMM). This request will include an analytical executive summary, summary of points of generation, and a comparison table of results to applicable regulatory limits to justify the waste determination to dispose of the IDW onto the site property. No IDW/RW will be disposed to the ground until USACE and state approval is granted. Once approval is granted, wastes will be disposed of to the ground at the site within 30 days of receipt of approval. When these actions are complete, USACE will be notified and the disposal will be documented in the final report.

5. ON-SITE TREATMENT AND DISPOSAL

Any removed groundwater (e.g., development and purge water, pump test water, etc.) that is free of EHC amendment will be treated on-site using a GAC system. Water removed from the ground will be placed into the treatment system and the effluent will be containerized. Once the container is full or a project phase is complete, the water will be sampled to ensure that contaminants are below the MCLs. Water not meeting MCLs may be re-treated, if necessary. The carbon, when spent, will be containerized as hazardous waste and sent for off-site disposal.

Purge water containing EHC treatment fluid may not be suitable for onsite treatment using the GAC system. This fluid will include purge water generated during borehole cleaning or drilling. This fluid will be containerized separately and sampled for disposal.

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- *Non-Hazardous, Non-DOT, Non-Resource Conservation and Recovery Act (RCRA) Solid Waste*. If the waste is determined to be non-hazardous and is below the maximum contaminant level (MCL) for groundwater (EPA, 2012)

6. TRANSPORTATION AND OFF-SITE DISPOSAL

North Wind will work with a licensed waste disposal subcontractor to make arrangements for off-site disposal of IDW/RW. Hazardous waste will be disposed of at a treatment, storage, and disposal facility (TSDF). For non-hazardous waste that cannot be disposed of on-site, North Wind will coordinate with USACE and work with the Colorado Department of Public Health and Environment (CDPHE) to obtain a Contained-Out determination. Preparation of manifests and associated forms will be performed by North Wind and the waste disposal subcontractor.

For any hazardous waste transported off-site, the USACE CHMM will be responsible for signing the manifests and the Department of Defense (DOD) will be shown as the generator of the wastes. Site-specific information that will be included on the hazardous waste manifests and transportation paperwork is shown in Table 2. North Wind will send the signed manifests (original carbon copies) and other associated shipping paperwork from the TSDF to USACE within 60 days following the date of the shipment. If the signed manifests will not be obtained within 60 days, the USACE representative will be immediately notified the so that notification can be made to CDPHE. Copies of the manifests and associated forms will be sent to the appropriate personnel at the CDPHE, and copies will be maintained in North Wind's and the USACE's project files.

Table 2. Atlas 12 hazardous waste manifest and transportation paperwork information.

Category	Example of Information
Generator's Name	F.E. Warren Missile Site Atlas 12
EPA Site ID number	COR000009324
Waste Code	F001 for Trichloroethene (TCE)
Generator's Mailing Address	USACE-Omaha District CENWO-PM-HA (Skog) 1616 Capitol Avenue, Suite 9000 Omaha, NE 68102 Phone: (402) 995-2739

6.1 CERCLA Status of Off-Site TSDF

Prior to contracting with a TSDF, a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) off-site approval will be obtained. One of the following TSDFs will be contacted when planning off-site disposal of hazardous waste. Approval will be obtained from EPA Region 8 representative, Terry Brown at Brown.Terry@epamail.epa.gov or (303) 312-6419, for the following site:

Arvada Treatment Center, LLC
5500 Fenton Street
Arvada, CO 80002
(303) 431-4826

Approval will be obtained from EPA Region 6 representative, Ron Wilkin at shannon.wilkin@epa.gov or (214) 665-2282, for the following site:

Rineco Chemical Industries, Inc.
819 Vulcan Road
Benton, AR 72015
(800) 377-4692
(501) 776-2367

6.2 Shipper Certification

The waste disposal subcontractor will have packaging, markings, labels, handling, and placards that comply with federal, state, and local laws and regulations and correlate with the waste classification and quantities designated on the manifest prior to the signature of the transporter. The USACE CHMM will be on-site to verify this has been completed on the day of shipment. The certification will be approved by the USACE CHMM prior to transport.

6.3 Waste Shipment and Tracking

Written acceptance will be obtained from the TSDF prior to transportation of wastes off-site. At a minimum, all hazardous waste will be shipped from the site within 180 days from the date of generation, unless the facility is a large quantity generator (LQG); then hazardous waste will be shipped from the site within 90 days.

USACE will be notified of the timing of shipments to the TSDF relative to the required time frames and provide all required reports if receipt has been delayed (e.g., discrepancy reports or exception reports).

7. COORDINATION WITH USACE

North Wind will coordinate with USACE for managing and documenting waste in accordance with this IDW/RW Management Plan and the requirements identified in the *General Investigation Derived Waste/Remediation Waste Handling and Disposal Scope of Services for Contracted Environmental Studies* (USACE, 2011). In addition, North Wind will track and report the generator status, in accordance with the requirements stated in Table 3, as part of the Atlas 12 monthly progress reports.

As shown in Table 3, generator status may include conditionally exempt small quantity generator (CESQG), small quantity generator (SQG), or LQG. The generator status may fluctuate depending upon the quantity of hazardous waste generated in each calendar month. The anticipated waste streams will be evaluated prior to conducting activities that will generate any waste to determine the contribution to the generator status for Atlas 12. Quantities of waste generated will be monitored per calendar month and reported to the USACE CHMM within 30 days of generating the waste. The generator status will be determined prior to development of profiles to ensure that the shipment, facility, and USACE are in compliance with regulatory requirements.

Table 3. Generator status requirements.

Type	Amount	Requirements
LQG	≥ 1,000 kg/month (approximately 2,200 lbs) > 1 kg/month acute (approximately 2.2 lbs) > 100 kg residue or contaminated soil from cleanup of acute hazardous waste spill	All 40 CFR 262 requirements
SQG	Between 100 – 1,000 kg/month (approximately 220 – 2,200 lbs)	40 CFR 262, Subparts A, B, C (§262.34(d) is specific to SQGs); and Subparts E, F, G, H (if applicable); and portions of Subpart D, as specified in §262.44
CESQG	≤ 100 kg/month ≤ 1 kg acute ≤ 100 kg residue or contaminated soil from cleanup of acute hazardous waste spill	40 CFR 261.5

CESQG = conditionally exempt small quantity generator
LQG = large quantity generator
SQG = small quantity generator

8. REFERENCES

40 CFR 261, 2000, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 261, "Identification and Listing of Hazardous Waste," Office of the Federal Register.

40 CFR 262, 2000, *Code of Federal Regulations*, Title 40, "Protection of Environment," Part 262, "Standards Applicable to Generators of Hazardous Waste," Office of the Federal Register.

49 CFR 172, 2000, *Code of Federal Regulations*, Title 49, "Transportation," Part 172, "Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements," Office of the Federal Register.

CDPHE, 2012, Colorado Soil Evaluation Values (CSEV), Screening Levels Protective of Groundwater Quality. http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251616113557, Colorado Department of Public Health and the Environment.

EPA, 2012, *Drinking Water Contaminants*. National Primary Drinking Waste Regulations, List of Contaminants and their maximum contaminant levels (MCLs). http://water.epa.gov/drink/contaminants/index.cfm, U.S. Environmental Protection Agency, June 5, 2012.

USACE, 2011, *General Investigation Derived Waste/Remediation Waste Handling and Disposal Scope of Services for Contracted Environmental Studies*, Performance Work Statement, Section C, Remediation Actions, Attachment 3 IDW Scope, F.E. Warren AFB, Former Atlas "E" Missile Site 12, Windsor, Colorado, U.S. Army Corps of Engineers, May 2011.

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